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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/773,243

01/31/2001

Thomas Henry Tichy

CTS-1999

6147

7590

01/10/2005

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EXAMINER

SHAPIRO, LEONID

ART UNIT

PAPER NUMBER

2673

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/773,243

Applicant(s)

TICHY ET AL.

Examiner

Leonid Shapiro

Art Unit

2673

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 2, 13-14, 17 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18 and 19 is/are allowed.
- 6) ☒ Claim(s) 1, 3-12, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations of claims 1, 3: "the substrate coupled to the **bottom** of the shaft ..." must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the limitations of claims 1, 3: "the substrate coupled to the **bottom** of the shaft ...".

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear how the substrate could be coupled to the bottom of the shaft, as newly introduced limitation of claims 1, 3 stated, when in Figure 2 of the disclosure, the substrate is clearly coupled to the sides of the shaft?

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seffernick et al. (US Patent No. 5,966,117) in view of Amano et al. (US Patent No. 6,241,684 B1).

As to claim 1, as best understood by examiner, Seffernick et al. teaches an apparatus for a cursor control device comprising: a cursor control mechanism having a shaft, the shaft having a top and a bottom (See Fig. 2, item 12 and Fig. 3, items 12, 30, in description see Col. 3, Lines 24-34); the substrate coupled to the cursor control mechanism (See Fig. 1, item 14, in description See Col. 4, Lines 41-46), the cursor control mechanism providing a Z-axis output signal in response to being actuated by an operator and control circuit sensing the z-axis output signal (See Fig. 4, item 161, in description See Col. 5, Lines 49-55).

Seffernick et al. does not teach a piezo-electric material mounted on a semi-rigid substrate, a control circuit electrically interconnected to the piezo-electric material for providing signal to cause the piezo-electric material to vibrate in response to the z-axis output signal; and piezo-electric material adapted to vibrate for a predetermined period of time.

Amano et al. teaches a tactile feedback (See Col. 43, Lines 7-9) by attaching a piezo-electric material on semi-rigid substrate (thin layer (70 micron) of the metal bottom surface of the main body) (See Figs. 14, 28, item 14, Col. 43, Lines 1-4), a control circuit electrically interconnected to the piezo-electric material for providing signal to cause the piezo-electric material to vibrate in response (See Figs. 2, 17 items 22, 24-25, 207, Col. 8, Lines 43-49, Col. 20, Lines 45-65 and Col. 43, Lines 4-7); and piezo-electric

material adapted to vibrate for a predetermined period of time (See Col. 7, Lines 24-26 and Col. 43, Lines 7-9). Notice, that alarm or sound maker in Amano et al. reference using a vibration which relies on tactile perception (See Fig. 2, items 201, 207, Col. 8, Lines 43-49).

It would have been obvious to one of ordinary skill in the art at the time of the invention to attach piezo-electric material on thin layer of substrate (semi-rigid substrate) and use tactile alarm as shown by Amano et al. in Seffernick et al. apparatus to response to Z-axis output signal in order to provide tactile feedback (See Col. 8, Lines 43-49 and Col. 42, Lines 52-56 in Amano et al. reference).

As to claim 4, Seffernick et al. teaches the cursor control mechanism has a cavity (See Fig. 3, item 16).

Seffernick et al. does not show the substrate mounted in the cavity.

Amano et al. teaches a tactile feedback (See Col. 43, Lines 7-9) by attaching a piezo-electric material on semi-rigid substrate (thin layer (70 micron) of the metal bottom surface of the main body) (See Figs. 14, 28, item 14, Col. 43, Lines 1-4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate teaching of Amano et al. into Seffernick et al. apparatus in order to provide tactile feedback (See Col. 8, Lines 43-49 and Col. 42, Lines 52-56 in Amano et al. reference).

As to claims 3, 5-6, Amano et al. teaches a tactile feedback (See Col. 43, Lines 7-9) by attaching a piezo-electric material on semi-rigid substrate (thin layer (70

micron) of the metal bottom surface of the main body) (See Figs. 14, 28, item 14, Col. 43, Lines 1-4).

Amano et al. does not show the substrate made from semi-rigid material as an alumina, an additional piezo-electric wafer, a ceramic material.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use different materials as an alumina, an additional piezo-electric wafer, a ceramic material in Seffernick et al. apparatus in order to provide tactile feedback (See Col. 8, Lines 43-49 and Col. 42, Lines 52-56 in Amano et al. reference). Such a modification in material usage would have been considered a mere design consideration which fails to patentably distinguish over the prior art of the record.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seffernick et al., and Amano et al. as applied to claim 1 above, and further in view of Saarmaa et al. (Pub. NO.: US 2001/0005108 A1).

Seffernick et al., and Amano et al. do not show piezo-electric material comprises a plurality of layers of piezo-electric material.

Saarmaa et al. teaches the piezo-electric material comprises a plurality of layers of piezo-electric material (See in Description paragraph 0052).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use piezo-electric material comprises a plurality of layers of piezo-electric material as shown by Saarmaa et al. in Seffernick et al. apparatus in order to provide tactile feedback (See in Description of Saarmaa et al. reference paragraph 0055).

6. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seffernick et al., and Amano et al. as aforementioned in claims 1, 4 and 6 in view of Barber et al. (US Patent No. 5,973,6700).

Amano et al teaches the control circuit providing control signal to cause the piezo-electric material to vibrate in response to the indicating signal (See Figs. 2, 17 items 22, 24-25, 207, Col. 8, Lines 43-49, Col. 20, Lines 45-65 and Col. 43, Lines 4-7).

Seffernick et al., and Amano et al. do not show an indicating circuit for providing an indicating signal when the cursor is placed over the active area on a display.

Barber teaches an indicating circuit for providing an indicating signal when the cursor is placed over the active area on a display (See Fig. 1, items 32,34, in description See from Col. 3, Line 66 to Col. 4, Line 29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use an indicating circuit for providing an indicating signal when the cursor is placed over the active area on a display as shown by Barber et al. in Seffernick et al., and Amano et al. apparatus in order to provide tactile feedback.

7. Claims 10-11, 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barber et al. in view of Sefferenick et al. and Amano et al.

As to claim 10, Barber et al teaches a computer input system comprising: a computer (See Fig. 1, item 16); a cursor control device electrically controlled to the computer (See fig. 1, item 14); software for determining a cursor position based upon



user actuation of the cursor control device display (See Fig. 1, items 32,34, in description See from Col. 3, Line 66 to Col. 4, Line 29).

Barber does not show the cursor control device further comprising: an x, y, z axis sensor system.

Seffernick et al. teaches an x, y, z axis sensor system (See Fig. 3, items 12, 30, in description see Col. 3, Lines 24-34); the substrate coupled to the cursor control mechanism (See Fig. 1, item 14, in description See Col. 4, Lines 41-46).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use an x, y, z axis system as shown by Seffernick et al. in Barber et al. apparatus and develop software determining a condition requiring tactile feedback in order to provide a pointing stick for controlling the positioning, movement and operation of a cursor on the display screen (See Col. 3, Lines 21-23 in Seffernick et al. reference).

Barber et al. and Seffernick et al. do not teach a piezo-electric material mounted on a semi-rigid substrate, an electrical circuit for generating a predefined signal, an electrical interconnection between the computer and the piezo-electric material for providing signal to cause the piezo-electric material to vibrate upon activation by the predefined electrical signal; the piezo-electric material providing tactile feedback to the user when activated by a predefined electrical signal; software determining a condition requiring tactile feedback and providing the predefined electrical signal to the piezo-electric material; and piezo-electric material adapted to vibrate for a predetermined period of time.

Amano et al. teaches a tactile feedback (See Col. 43, Lines 7-9) by attaching a piezo-electric material on semi-rigid substrate (thin layer (70 micron) of the metal bottom surface of the main body) (See Figs. 14, 28, item 14, Col. 43, Lines 1-4), an electrical circuit for generating a predefined signal (See Fig. 17, items 24-25, Col. 20, Lines 46-67); an electrical interconnection between the computer and the piezo-electric material for providing signal to cause the piezo-electric material to vibrate upon activation by the predefined electrical signal (See Figs. 2, 17 items 22, 24-25, 207, Col. 8, Lines 43-49, Col. 20, Lines 45-65 and Col. 43, Lines 4-7); the piezo-electric material providing tactile feedback to the user when activated by a predefined electrical signal (See Col. 43, Lines 7-9); software determining a condition requiring tactile feedback and providing the predefined electrical signal to the piezo-electric material (See Figs. 2, 17, items 201, 207, 24-25, Col. 7, Lines 24-26 and Col. 8, Lines 43-49); and piezo-electric material adapted to vibrate for a predetermined period of time (See Col. 7, Lines 24-26 and Col. 43, Lines 7-9). Notice, that alarm or sound maker in Amano et al. reference using a vibration which relies on tactile perception (See Fig. 2, items 201, 207, Col. 8, Lines 43-49).

It would have been obvious to one of ordinary skill in the art at the time of the invention to attach piezo-electric material on thin layer of substrate (semi-rigid substrate) and use tactile alarm as shown by Amano et al. in Seffernick et al. and Barber apparatus in the cursor control device in order to provide tactile feedback (See Col. 8, Lines 43-49 and Col. 42, Lines 52-56 in Amano et al. reference).

As to claim 11, Amano et al. teaches the predefined electrical signal is an AC signal (See Col. 43, Lines 4-8).

As to claims 15, Seffernick et al. teaches the cursor control device is a pointing stick (See Fig. 5, item 10, in description See Col. 2, Lines 14-16).

As to claims 16, Barber et al. teaches a mouse as the cursor control device (See Fig. 2, item 36, Col. 4, Lines 30-35).

8. Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amano et al., Seffernick et al. and Barber as applied to claim 10 above, and further in view of Woodart et al. (US Patent No. 6, 259, 188 B1).

Amano et al., Seffernick et al. and Barber do not show an AC signal is at least 20 volts peak to peak.

Woodard et al. teaches an AC signal is at least 20 volts peak to peak (See Fig. 1A, item 32, in description See col. 4, Lines 5-18) with a frequency of at least 300 Hz (See Fig. 1A, item 32, in description See col. 3, Lines 52-57).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use 20 volt signal as shown by Woodard et al. in Amano et al., Seffernick et al. and Barber apparatus in order to provide an alert apparatus (See Col. 1, Lines 46-47 in Woodart et al. reference).

### ***Response to Argument***

9. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning on page 8, last paragraph of the remarks filed on 08-18-04 in relation to claim 10, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

***Allowable Subject Matter***

10. Claims 18-19 are allowed.

11. The following is a statement of reasons for the indication of allowable subject matter:

Relative to independent claims 18 and 19 the major difference between the teaching of the prior art of record (Seffernick et al., Amano et al. and Culler) and the instant invention is that the said prior art **does not teach** that a piezo-electric assembly is mechanically coupled to the bottom of the cursor control device to deliver the vibrations to the user.

***Telephone inquire***

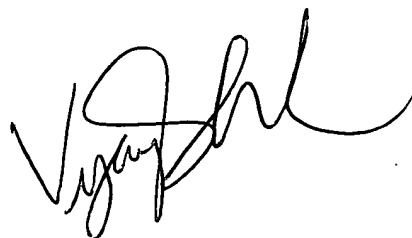
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ls

12.30.04

A handwritten signature in black ink, appearing to read 'Vijay Shankar', with a stylized, cursive script.

**VIJAY SHANKAR  
PRIMARY EXAMINER**